

**DRAFT ECONOMIC ANALYSIS
OF CRITICAL HABITAT DESIGNATION
FOR THE OTAY TARPLANT**

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PREFACE

The U.S. Fish and Wildlife Service has added this preface to all economic analyses of critical habitat designations:

"The standard best practice in economic analysis is applying an approach that measures costs, benefits, and other impacts arising from a regulatory action against a baseline scenario of the world without the regulation. Guidelines on economic analysis, developed in accordance with the recommendations set forth in Executive Order 12866 ("Regulatory Planning and Review"), for both the Office of Management and Budget and the Department of the Interior, note the appropriateness of the approach:

'The baseline is the state of the world that would exist without the proposed action. All costs and benefits that are included in the analysis should be incremental with respect to this baseline.'

"When viewed in this way the economic impacts of critical habitat designation involve evaluating the 'without critical habitat' baseline versus the 'with critical habitat' scenario. Impacts of a designation equal the difference, or the increment, between these two scenarios. Measured differences between the baseline and the scenario in which critical habitat is designated may include (but are not limited to) changes in land use, environmental quality, property values, or time and effort expended on consultations and other activities by federal landowners, federal action agencies, and in some instances, State and local governments and/or private third parties. Incremental changes may be either positive (benefits) or negative (costs).

"In New Mexico Cattle Growers Ass'n v. U.S.F.W.S., 248 F.3d 1277 (10th Cir. 2001), however, the 10th Circuit recently held that the baseline approach to economic analysis of critical habitat designations that was used by the Service for the southwestern willow flycatcher designation was 'not in accord with the language or intent of the ESA.' In particular, the court was concerned that the Service had failed to analyze any economic impact that would result from the designation, because it took the position in the economic analysis that there was no economic impact from critical habitat that was incremental to, rather than merely co-extensive with, the economic impact of listing the species. The Service had therefore assigned all of the possible impacts of designation to the listing of the species, without acknowledging any uncertainty in this conclusion or considering such potential impacts as transaction costs, reinitiations, or indirect costs. The court rejected the baseline approach incorporated in that designation, concluding that, by obviating the need to perform any analysis of economic impacts, such an approach rendered the economic analysis requirement meaningless: 'The statutory language is plain in requiring some kind of consideration of economic impact in the CHD phase.'

"In this analysis, the Service addresses the 10th Circuit's concern that we give meaning to the ESA's requirement of considering the economic impacts of designation by acknowledging the uncertainty of assigning certain post-designation economic impacts (particularly section 7 consultations) as having resulted from either the listing or the designation. The Service believes that for many species the designation of critical habitat has a relatively small economic impact, particularly in areas where consultations have been ongoing with respect to the species. This is because the majority of the consultations and associated project modifications, if any, already consider habitat impacts and as a result, the process is not likely to change due to the designation of critical habitat. Nevertheless, we recognize that the nationwide history of consultations on critical habitat is not broad, and, in any particular case, there may be considerable uncertainty whether an impact is due to the critical habitat designation or the listing alone. We also understand that the public wants to know more about the kinds of costs consultations impose and frequently believes that designation could require additional project modifications.

"Therefore, this analysis incorporates two baselines. One addresses the impacts of critical habitat designation that may be 'attributable co-extensively' to the listing of the species. Because of the potential uncertainty about the benefits and economic costs resulting from critical habitat designations, we believe it is reasonable to estimate the upper bounds of the cost of project modifications based on the benefits and economic costs of project modifications that would be required due to consultation under the jeopardy standard. It is important to note that the inclusion of impacts attributable co-extensively to the listing does not convert the economic analysis into a tool to be considered in the context of a listing decision. As the court reaffirmed in the southwestern willow flycatcher decision, 'the ESA clearly bars economic considerations from having a seat at the table when the listing determination is being made.'

"The other baseline, the lower boundary baseline, will be a more traditional rulemaking baseline. It will attempt to provide the Service's best analysis of which of the effects of future consultations actually result from the regulatory action under review - i.e. the critical habitat designation. These costs will in most cases be the costs of additional consultations, reinitiated consultations, and additional project modifications that would not have been required under the jeopardy standard alone as well as costs resulting from uncertainty and perceptual impacts on markets."

DATED: March 20, 2002

1.0 INTRODUCTION AND BACKGROUND

1. In June 2001, the U.S. Fish and Wildlife Service (the Service) proposed designating critical habitat for the Otay tarplant (*Deinandra conjugens*) on approximately 6,630 acres in San Diego County, California.¹ The purpose of this report is to identify and analyze potential economic impacts that could result from the proposed critical habitat designation. This report was prepared by Industrial Economics, Incorporated (IEC), under contract to the Service's Division of Economics.
2. Section 4(b)(2) of the Endangered Species Act (Act), as amended, requires that the Service base the designation of critical habitat upon the best scientific and commercial data available, after taking into consideration the economic impact, and any other relevant impact, of specifying any particular area as critical habitat. The Service may exclude areas from critical habitat designation when the benefits of exclusion outweigh the benefits of including the areas as critical habitat, provided the exclusion will not result in extinction of the species.
3. Upon the listing of a species, section 7(a)(2) of the Act requires Federal agencies to consult with the Service in order to ensure that activities they fund, authorize, permit, or carry out are not likely to jeopardize the continued existence of the species. The Service defines jeopardy as any action that would appreciably reduce the likelihood of both the survival and recovery of the species. For designated critical habitat, section 7(a)(2) also requires Federal agencies to consult with the Service to ensure that activities they fund, authorize, permit, or carry out do not result in destruction or adverse modification of critical habitat. Adverse modification of critical habitat is defined as any direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species.

1.1 Description of Species and Habitat

4. The Otay tarplant (tarplant) is a glandular, aromatic annual of the Aster family (*Asterceae*) with a branching stem that ranges from two to ten inches in height with deep green or gray-green leaves and yellow flowers.² Occurrences of tarplant are strongly correlated with clay soils, subsoils, or lenses. The tarplant is also strongly associated with particular vegetation types such as grasslands, coastal sage scrub, and maritime succulent scrub. The elevational range for the species appears to be between 80 feet and 1,000 feet.

¹The tarplant was listed as a threatened species on October 13, 1998 (U.S. Fish and Wildlife Service, *Endangered and Threatened Wildlife and Plants; Determinations of Endangered or Threatened Status; Final Rules and Withdrawal of Proposed Rule*, October 13, 1998 (63 FR 54938)).

²Information on the tarplant and its habitat is taken from the U.S. Fish and Wildlife Service, *Endangered and Threatened Wildlife and Plants; Proposed Designation of Critical Habitat for *Deinandra conjugens* (Otay tarplant)*, June 13, 2001 (66 FR 32052).

5. In determining which areas to propose as critical habitat, the Service must consider those physical and biological features that are essential to the survival and recovery of the species. The following are the primary constituent elements that the Service has identified as critical to the survival of the tarplant:

- Soils with a high clay content that are associated with grasslands, open coastal sage scrub, or maritime succulent scrub communities between 80 feet and 1,000 feet elevation; and
- Certain plant communities associated with tarplant as described above (see proposed rule for list of species). These plant communities contain natural openings that provide nesting, foraging, and dispersal sites for tarplant pollen and seed dispersal agents. These openings may have soil inclusions that contain a significantly higher concentration of sandy soils than the adjacent clay soils.

1.2 Proposed Critical Habitat

6. The Service has proposed critical habitat designation for the tarplant on approximately 6,630 acres of land in San Diego County, California. Approximately 1,545 acres, or roughly 23.3 percent are located on federally-owned or managed lands; 1,455 acres (21.9 percent) are owned by the State or local authorities; and 3,630 acres (54.8 percent) of the total acreage proposed are located on private lands. The majority of lands included in this designation are currently undeveloped. All of the units include lands in both San Diego County and the City of Chula Vista.

7. A more detailed description of each critical habitat unit is provided below:

- **Unit 1: Sweetwater/Proctor Valley Unit** - This unit (3,865 acres) encompasses the northeastern limit of the species' distribution. Land in the unit is owned by several public and private entities, including: (1) Federal land that is part of the San Diego National Wildlife Refuge (SDNWR); (2) land around the Sweetwater Reservoir that is owned by the Sweetwater Authority Water District (SWAWD); (3) land belonging to the Otay Water District; (4) county land known as the Sweetwater Regional Park; and (5) private lands referred to as Rolling Hills Ranch, Bella Lago Residential Community, and the San Miguel Mountains.
- **Unit 2: Chula Vista Unit** - This unit (515 acres) is located at the western portion of the species' range, and a large portion of the land is owned by the City of Chula Vista. In addition, a portion of this unit is privately-owned. The land is comprised primarily of undeveloped habitat patches (with the exception of man-made drainage improvements) along canyon ridges in Poggi Canyon, Rice Canyon, and Long Canyon.

- **Unit 3: Otay Valley/Big Murphy's Unit** - This unit (2,249 acres) encompasses the southern and eastern portions of the species' distribution. A portion of this land is federally-owned by the Immigration and Naturalization Service (INS). The rest of the lands are privately-owned by a few large landowners and are primarily undeveloped.

1.3 Relevant Baseline Elements

8. This section provides relevant information about the regulatory elements that exist in the baseline, i.e., the "without section 7" scenario. These regulations may influence development and/or affect the section 7 consultation process. This discussion focuses on the several, important regulatory elements that have bearing on this analysis but does not represent a comprehensive description of baseline.

1.3.1 Overlap with Other Listed Species

9. Generally, if a consultation is triggered for any listed species, the consultation process will also take into account all other federally-listed species known or thought to occupy areas affected by the proposed action. The Carlsbad Fish and Wildlife Office (Carlsbad FWO) has conducted formal consultations on the tarplant in combination with several species, including the federally-listed coastal California gnatcatcher (*Polioptila californica californica*), southwestern willow flycatcher (*Empidonax traillii extimus*), least Bell's vireo (*Vireo bellii pusillus*), Quino checkerspot butterfly (*Euphydryas editha quino*), and arroyo toad (*Bufo microscaphus californicus*).
10. The net effect of the presence of other federally-listed species in the proposed critical habitat areas for the tarplant is that the number of consultations conducted for the tarplant alone is likely to be smaller than would be expected in the absence of these species. Indeed, most past consultations on the tarplant have involved at least one or two other species per consultation. Thus, the cost of a consultation that involves the tarplant may not be fully attributable to the presence of this species or its habitat. Nonetheless, because consultations must consider project related effects to each listed species separately, a certain amount of research and time will be spent on the tarplant regardless of the presence of other species. In order to present a conservative estimate of the economic impacts associated with the implementation of section 7, this analysis assumes that all future section 7 consultations within the extant boundaries of the proposed critical habitat are fully attributable to the presence of the tarplant and its habitat.

1.3.2 California Environmental Quality Act

11. The California Environmental Quality Act (CEQA) requires identification of the environmental effects of proposed projects that have the potential to harm sensitive species (state- or federally-listed). The lead agency (typically the California State agency in charge of oversight of the project) must determine whether a proposed project would have a "significant" effect on the environment. Under CEQA, a habitat assessment and/or surveys are conducted in order to determine the potential environmental effects of proposed projects on all rare, threatened, and endangered species. Section 15065 of Article 5 of the CEQA regulations states that a finding of significance is mandatory if the project will "substantially reduce the habitat of a fish and wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare or threatened species, or eliminate important examples of the major periods of California history or prehistory." If the lead agency finds a project may cause significant impacts, the landowners must prepare an Environmental Impact Report (EIR).³
12. Any economic impacts identified by the EIR process are due to the presence of a particular species on the project land, whether or not it has been designated as critical habitat by the Service. Review of the CEQA statute and conversations with the California Resources Agency (one of the agencies responsible for administering CEQA) reveal that when a species is known to occupy a parcel of land, the designation of critical habitat alone does not require a lead agency to pursue any further actions.⁴
13. In some cases, the requirements of the CEQA process may be similar to the requirements of the listing and critical habitat requirements. For example, a project manager may be required to conduct a survey or prepare a habitat assessment as part of the CEQA EIR process. The data supplied by these assessments may be useful in the section 7 consultation process associated with endangered species.⁵ Therefore, the CEQA regulations may reduce the level of effort required by project managers to comply with the endangered species regulations.

³ California Resources Agency, "Summary and Overview of the California Environmental Quality Act," November 12, 1998, http://ceres.ca.gov/topic/env_law/ceqa/summary.html, August 23, 2000.

⁴ Personal communication with the California Resources Agency Office on September 11, 2000.

⁵ Personal communication with Jones & Stokes Associates, Inc., on May 22, 2001.

1.3.3 California Endangered Species Act

14. The California Endangered Species Act (CESA) generally parallels the main provisions of the Act.⁶ CESA defines "endangered species" as "a native [to California] species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease."⁷ Like the Act, CESA provides for the listing of threatened or endangered species, and provides protection for these species by prohibiting the taking of listed species. CESA applies the same definition of a "lead agency" as CEQA.⁸ The tarplant was listed under CESA as endangered in 1979.⁹
15. The tarplant benefits from State protection due to its State listing under CESA. Prior to or during the section 7 consultation process, project applicants may make agreements with State regulatory agencies while addressing CESA prohibitions to protect the plant. As a result, a portion of the costs of avoidance or minimization appearing to result from section 7 consultations may be attributable to requirements under CESA. Because it is often difficult to accurately attribute costs to State regulations, this analysis conservatively assumes that all costs resulting from future consultations are fully attributable to section 7 of the Act. As a result, this report may overstate the consultation costs attributable to the Federal listing and critical habitat designation for the tarplant.

1.3.4 California Natural Community Conservation Planning Act

16. In 1991, the California Resources Agency's Department of Fish and Game began implementing the California Natural Community Conservation Planning Act (NCCP). The primary goal of this program is "to conserve natural communities at the ecosystem scale while accommodating compatible land use."¹⁰ California lawmakers indicate that they consider natural community conservation planning to be "an effective tool in protecting California's natural diversity

⁶ "Fish and Game Code: California Endangered Species Act," accessed at http://ceres.ca.gov/topic/env_law/cesa/summary.html on March 8, 2002.

⁷ Fish and Game Code § 2053.

⁸ Pub. Res. Code §21067, as cited in "Fish and Game Code: California Endangered Species Act," accessed at http://ceres.ca.gov/topic/env_law/cesa/summary.html on March 8, 2002.

⁹ "California's Plants and Animals," accessed at http://www.dfg.ca.gov/hcpb/species/t_e_spp/teplant/teplanta.shtml, on March 8, 2002.

¹⁰ "Natural Community Conservation Planning," accessed at <http://www.dfg.ca.gov/nccp>, on March 7, 2002.

while reducing conflicts between protection of the state's wildlife heritage and reasonable use of natural resources for economic development."¹¹

17. The focus of the initial effort of the NCCP was the coastal sage scrub habitat of Southern California, home to approximately 100 potentially threatened or endangered species, including the California gnatcatcher. The program organized portions of five counties in southern California that feature this type of habitat into 11 planning "subregions." These subregions are further divided into "subareas," corresponding to geographic boundaries of participating jurisdictions or landowners. Within each subregion and subarea, a local lead agency coordinates a collaborative planning process, working with landowners, environmental organizations, and other interested parties to develop a conservation plan (also referred to as a habitat conservation plan, or HCP).¹² The CDFG and the Service provide support, direction, and guidance during this process.¹³ The program includes San Diego County, where the conservation plan that specifically addresses coastal sage scrub and other types of habitat within the range of Otay tarplant is known as the Multiple Species Conservation Program (MSCP) Plan. The overarching MSCP Plan guides environmental protection and appropriate economic development over a 900-square mile area (approximately 581,000 acres) of the county.¹⁴
18. Early in the development of the NCCP program, a memorandum of understanding between the Service and the Department of Fish and Game was signed, "committing the wildlife agencies to cooperating in the NCCP program's implementation."¹⁵ The Department of Interior used section 4(d) of the Act to provide an exemption to take prohibitions, thereby allowing some development to proceed while subregional and subarea plans are drafted. The section 4 (d) special rule establishes that incidental take of a species is not considered a violation of section 9 of the Act if; (1) take results from activities conducted pursuant to the requirements of the NCCP and in accordance with an approved NCCP plan, prepared consistent with the State of California's Conservation and Process Guidelines; and (2) if the Service issues written concurrence that the plan meets the standards for issuance of an incidental take permit under Section 10(a)(1)(B) of the Act.¹⁶ If an NCCP plan is approved, wildlife agencies assure that, for entities that are properly implementing their plan, the

¹¹ Fish and Game Code §§ 2800-2840.

¹² "Natural Community Conservation Planning," accessed at <http://www.dfg.ca.gov/nccp>, on March 7, 2002.

¹³ Ibid.

¹⁴ "Frequently Asked Questions About the MSCP," provided by the U.S. Fish and Wildlife Service, Carlsbad FWO, on February 14, 2002.

¹⁵ Ibid.

¹⁶ Memorandum from Andrew Yuen, U.S. Fish and Wildlife Service, to Kristen Gustafson, Department of Justice, March 2, 2002.

agencies will not seek additional land, land restrictions, or financial compensation if unforeseen circumstances should later arise with respect to either listed or unlisted covered species.¹⁷

19. The following are brief descriptions of subregional and subarea plans that are part of the MSCP Plan and affect areas proposed as critical habitat for the tarplant.

- **San Diego County MSCP Subarea Plan.** In August 1998, San Diego County finalized its subarea plan under the MSCP Plan, which covers 82 plant and animal species that are federally- or state-listed as endangered, threatened, rare, or sensitive, including the tarplant.¹⁸ During the development of this subarea plan, county officials worked with the Service, the CDFG, local officials, private property owners, representatives of development interests, and the environmental community to determine areas to be designated for conservation and development. Private lands where county officials were unable to adequately identify future conservation and development areas are designated as either Minor or Major Amendment Areas and are not included in the incidental take permit granted to the MSCP participants. Therefore, section 7 consultations that take place in these areas may be more likely to require project modifications than consultations in areas included in the plan.
- **City of Chula Vista's Proposed MSCP Subarea Plan.** The City of Chula Vista has been working closely with the Service and other stakeholders to create its subarea plan under the MSCP Plan. The city's subarea plan is currently scheduled to be finished in late 2002. The tarplant is included in this plan, and if approved, the subarea plan will designate large portions of the proposed critical habitat for the tarplant as preserve design areas. In addition, several of the projects discussed in this analysis will be included under the incidental take permit granted in association with the Service's approval of the subarea plan.
- **Joint Water Agencies Subregional Plan.** Four water districts in San Diego County have been developing a subregional plan, including Helix Water District, Padre Dam Municipal Water District, Sweetwater Authority, and Santa Fe Irrigation District. The plan describes how these districts will conserve natural habitats and species while continuing to provide water services. The plan is expected to be finalized in 2002.¹⁹
- **Otay Water District Subarea Plan.** Otay Water District is finalizing its subarea plan and will submit final documents for review in 2002. The District already had set aside 230 acres

¹⁷ "Frequently Asked Questions About the MSCP," provided by the U.S. Fish and Wildlife Service, Carlsbad FWO, on February 14, 2002.

¹⁸ *Final Multiple Species Conservation Program: MSCP Plan*, August 1998; and Personal communication with Biologist, U.S. Fish and Wildlife Service, Carlsbad Office, February 14, 2002.

¹⁹ "NCCP: Update, Status of NCCP Planning Efforts," <http://www.dfg.ca.gov/nccp/status.htm>, as viewed on February 25, 2002.

called the San Miguel Habitat Management Area, which serves as a mitigation bank for impacts resulting from District projects. These mitigation lands will serve as components of the MSCP preserve system.²⁰

20. For areas of the proposed critical habitat that overlap with approved or proposed subregional or subarea plans, the MSCP provides insight into the activities that are likely to take place in those areas. For example, much of the proposed critical habitat designation for the tarplant overlaps with current or proposed preserve design areas included in the MSCP. In areas with an approved plan, the Service is still required under section 7 of the Act to consult with Federal agencies to ensure that activities they fund, authorize, permit, or carry out are not likely to jeopardize the continued existence of the species or result in destruction or adverse modification of critical habitat. Conversations with the Service suggest that for activities that are approved under the plan, these consultations are likely to be formal. Project modifications associated with these consultations are unlikely, because the Service is unlikely to request additional measures beyond those identified to meet section 10 issuance criteria.
21. In addition, because issuance of an incidental take permit in association with an HCP is a Federal action, the Service must complete a formal section 7 consultation prior to approving a subarea or subregional plan.²¹ This consultation is conducted internally within the Service. Project modifications associated with the internal section 7 consultation are unlikely, again, because the Service is unlikely to request additional measures beyond those identified to meet section 10 issuance criteria.
22. The development of subregional or subarea plans may include agreements between natural resources agencies and private entities that result in significant project modifications. In some instances, project modifications agreed to as part of an MSCP process that is not yet complete may be submitted as proposed project modifications in a section 7 consultation. As a result, it may be difficult to attribute costs accurately to State and Federal processes. Therefore, for the purposes of ensuring that potential Federal responsibilities under the Act are fully acknowledged and represented, this analysis assumes that project modifications agreed to during the development of subregional and subarea plans and anticipated to be proposed in future section 7 consultations are fully attributable to section 7 of the Act, overstating actual section 7-related costs.

1.4 Socioeconomic Profile of the Critical Habitat Areas

23. This section summarizes key economic and demographic information for the County of San Diego, which contains proposed critical habitat for the tarplant. County level data provide context

²⁰ Ibid.

²¹ Personal communication with Biologist, U.S. Fish and Wildlife Service, Carlsbad Field Office, February 14, 2002.

for the discussion of potential economic impacts due to critical habitat designation and to illuminate trends that may influence these impacts.²²

24. San Diego is the second most populous county in the State of California. In 2000, its population of slightly more than 2.9 million accounted for about 8.5 percent of the State total. The estimated average population density for San Diego County is 671 people per square mile. Since 1990, average annual population growth rate in San Diego County has been about 1.5 percent, which is equal to the State average. In 2000, San Diego County had a little more than one million housing units.²³ This figure reflects an average annual housing growth rate of about 0.9 percent since 1990, which is about equal to the State average.
25. The population in the City of Chula Vista was 151,093 in 1995 and is projected to increase to 233,313 by 2010 (approximately 54 percent growth). The total number of housing units in the City of Chula Vista is projected to increase from 53,961 units in 1995 to 80,775 units in 2010 (approximately 50 percent growth). Significant development pressure exists in the areas within and surrounding the proposed critical habitat designation, particularly areas located within Otay Ranch, Rolling Hills Ranch, and Bella Lago.²⁴ Most of this planned development area is outside the designation.
26. The population in the unincorporated areas of San Diego County was 429,178 in 1995, and is projected to be 553,621 by 2010 (approximately 29 percent growth). The total number of housing units in the unincorporated areas is projected to increase from 146,634 units to 186,263 units over the same time period (approximately 27 percent).²⁵ The unincorporated areas of San Diego County included in the proposed critical habitat designation face less development pressure than those areas surrounding proposed critical habitat in the City of Chula Vista.

²² Population and housing summaries are derived mainly from: State of California, Department of Finance, *City/County Population and Housing Estimates, 1991-2000, with 1990 Census Counts*. Other statistics are derived from the U.S. Bureau of Economic Analysis Regional Facts, accessed at <http://www.bea.doc.gov/bea/regional/bearfacts/bf10/06/index.htm> on April 6, 2001, and the 1997 *County and City Extra*, George Hall and Deirdre Gaquin, editors (Bernan Press, MD) 1997.

²³ State of California, Department of Finance, *City/County Population and Housing Estimates, 1991-2000, with 1990 Census Counts*.

²⁴Letter from Robert A. Leiter, Director of Planning and Building for the City of Chula Vista, to Jim Bartel, Field Supervisor of the Carlsbad FWO, July 30, 2001.

²⁵San Diego Association of Governments (SANDAG), *2020 Regional Forecast*, February 26, 1999.

2.0 FRAMEWORK, METHODOLOGY, AND IMPACTS

2.1 Framework for Analysis

27. The focus of this economic analysis is on section 7 of the Act, which requires Federal agencies to insure that any action authorized, funded, or carried out will not likely jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat. Federal agencies are required to consult with the Service whenever they propose a discretionary action that may affect a listed species or its designated critical habitat. Aside from the protection that is provided under section 7, the Act does not provide other forms of protection to lands designated as critical habitat. Because consultation under section 7 only applies to activities that are federally funded, authorized, or carried out, the designation of critical habitat will not afford any additional protections for species with respect to private activities that have no Federal nexus.
28. This analysis first identifies land use activities within or in the vicinity of those areas being proposed for critical habitat that are likely to be affected by section 7 of the Act. To do this, the analysis evaluates a “without section 7” scenario and compares it to a “with section 7” scenario. The “without section 7” scenario constitutes the baseline of this analysis. It represents the level of protection currently afforded the species under the Act, absent section 7 protective measures, which includes other Federal, State, and local laws. The “with section 7” scenario identifies land-use activities likely to involve a Federal nexus that may affect the species or its designated critical habitat, which accordingly have the potential to be subject to future consultations under section 7 of the Act.
29. Economic activities identified as likely to be affected under section 7 and the resulting impacts that section 7 can have on such activities constitute the upper-bound estimate of the proposed critical habitat economic analysis. By defining the upper-bound estimate to include Federal activities that may affect a listed species or its critical habitat, the analysis recognizes the difficulty in sometimes differentiating between the two in evaluating only the critical habitat effects associated with the proposed rulemaking. This step is adopted in order to ensure that any critical habitat impacts that may occur co-extensively with the listing of the species (i.e., jeopardy) are not overlooked in the analysis.
30. Upon identifying section 7 impacts, the analysis proceeds to consider the subset of impacts that can be attributed exclusively to the critical habitat designation. To do this, the analysis adopts a “with and without critical habitat approach.” This approach is used to determine those effects found in the upper-bound estimate that may be attributed solely to the proposed designation of critical habitat. Specifically, the “with and without critical habitat” approach considers section 7 impacts that will likely be associated with the implementation of the *jeopardy* provision of section 7 and those that will likely be associated with the implementation of the *adverse modification* provision of section 7. In many cases, impacts associated with the jeopardy standard remain unaffected by the designation of critical habitat and thus would not normally be considered an effect

of a critical habitat rulemaking. The subset of section 7 impacts likely to be affected solely by the designation of critical habitat represent the lower-bound estimate of this analysis.

31. The critical habitat designation for the tarplant encompasses land under private, State/local, and Federal ownership, with Federal lands being owned by the Service and the INS. For private lands subject to critical habitat designation, section 7 consultations and modifications to land uses and activities can only be required when a Federal nexus, or connection, exists. A Federal nexus arises if the activity or land use of concern involves Federal permits, Federal funding, or any other Federal actions carried out. Section 7 consultations are not required for activities on non-Federal lands that do not involve a Federal nexus.
32. This report estimates impacts of listing and critical habitat designation on activities that are "reasonably foreseeable," including, but not limited to, activities that are currently authorized, permitted, or funded, or for which proposed plans are currently available to the public. Proposals for land improvement projects on specific parcels are often unavailable for time periods extending beyond ten years. Accordingly, the analysis bases estimates on activities that are likely to occur within a ten-year time horizon.

2.2 Methodological Approach

33. This report relies on a sequential methodology and focuses on distilling the salient and relevant aspects of potential economic impacts of designation. The methodology consists of:
- Determining the current and projected economic activity within and around the proposed critical habitat area;
 - Considering how current and future activities that take place or will likely take place on the Federal and private land could adversely affect proposed critical habitat;
 - Identifying whether such activities taking place on privately-owned property within the proposed critical habitat boundaries are likely to involve a Federal nexus;
 - Evaluating the likelihood that identified Federal actions and non-Federal private actions (e.g., by local and State jurisdictions and private landowners) having a Federal nexus will require consultations under section 7 of the Act and, in turn, that such consultations will result in modifications to projects;
 - Estimating per-unit costs of expected section 7 consultations, project modifications and other economic impacts associated with activities in or adjacent to areas proposed as critical habitat;

- Estimating the upper bound of total costs associated with the area proposed for the designation (including costs that may be attributed co-extensively with the listing of the species) and the lower bound of costs (i.e., costs attributable solely to critical habitat);
- Determining the benefits that may be associated with the designation of critical habitat; and
- Assessing the extent to which critical habitat designation will create costs for small businesses and/or affect property values as a result of modifications or delays to projects.

2.3 Information Sources

34. The primary sources of information for this report were communications with personnel from the Carlsbad FWO, the SDNWR, the County of San Diego Department of Planning and Land Use, the City of Chula Vista, Otay Water District and SWAWD, Sweetwater Regional Park, and the Otay Landfill. Publicly available data (e.g., information available on the Internet) were also used to augment the analysis.
35. This analysis also relies upon local general plans for information about projected land use. This information, in turn, helps to predict the potential impacts of critical habitat designation. For example, in 1995 Chula Vista City Council and Planning Commission published a general plan for the city. The plan designates "Open Space Districts" in many of the same areas that are designated as preserve design areas under the city's proposed subarea plan.
36. Estimates of the cost of an individual consultation were developed from a review and analysis of historical section 7 files from a number of Service field offices around the country. These files addressed consultations conducted for both listings and critical habitat designations. Cost figures were based on an average level of effort for consultations of low, medium, or high complexity, multiplied by the appropriate labor rates for staff from the Service and other Federal agencies. Estimates take into consideration the level of effort of the Service, the Action agency, and the applicant during both formal and informal consultations, as well as the varying complexity of consultations. Informal consultations are assumed to involve a low to medium level of complexity. Formal consultations are assumed to involve a medium to high level of complexity. The cost of a formal consultation includes the cost of the informal consultation that likely began the section 7 consultation process.
37. Section 7 consultation costs include the administrative costs associated with conducting the consultation, such as the cost of time spent in meetings, preparing letters, and in some cases, developing a biological assessment and biological opinion. The costs of reinitiating a consultation are assumed to be similar to conducting the original consultation, because the re-initiation generally

involves time spent in meetings and preparing letters. This analysis assumes that the economic impact associated with a non-substantive reinitiation is similar to the cost of an informal consultation and the economic impact associated with a substantive re-initiation is similar to the cost of a formal consultation. The cost of internal consultation, where the Service is the Action agency, depends on the activity under consideration and may be similar to the costs of either informal or formal consultations.

38. Cost estimates for technical assistance are based on an analysis of past technical assistance efforts by the Service in southern California (Carlsbad FWO). Technical assistance costs represent the estimated economic costs of informational conversations, letters, and meetings between landowners or developers and the Service regarding the designation of critical habitat for the tarplant. Most likely, such communication will occur between municipal or private property owners and the Service regarding areas designated as critical habitat or lands adjacent to critical habitat.
39. Estimated administrative costs associated with section 7 consultations, reinitiations, and technical assistance efforts are presented in Exhibit 1 (these are per effort estimates). The low and the high scenarios represent a reasonable range of costs for each type of interaction. For example, when the Service participates in technical assistance with a third party regarding a particular activity, the cost of the Service's effort is expected to be approximately \$260 to \$680. The cost of the third party's effort is expected to be approximately \$600 to \$1,500.

Exhibit 1					
ESTIMATED ADMINISTRATIVE COSTS OF CONSULTATION AND TECHNICAL ASSISTANCE EFFORTS FOR THE OTAY TARPLANT (PER EFFORT)					
Critical Habitat Impact	Scenario	Service	Action Agency	Third Party	Biological Assessment^a
Technical Assistance	Low	\$260	\$0	\$600	\$0
	High	\$680	\$0	\$1,500	\$0
Informal Consultation	Low	\$1,000	\$1,300	\$1,200	\$0
	High	\$3,100	\$3,900	\$2,900	\$4,000
Formal Consultation	Low	\$3,100	\$3,900	\$2,900	\$4,000
	High	\$6,100	\$6,500	\$4,100	\$5,600
^a A third party bears the cost of a biological assessment. When no third party is involved, the Action agency bears the cost. Notes: 1. Low and high estimates primarily reflect variations in staff wages and time involvement by staff. 2. Technical assistance also has educational benefits to the landowner or manager and to the Service. 3. For the purposes of this analysis, internal consultations are assumed to cost approximately the same amount as informal consultations, unless other indicated. Sources: IEc analysis based on data from the Federal Government General Schedule Rates, Office of Personnel Management, 2002, a review of consultation records from several Service field offices across the country, and communications with Biologists in the Service.					

40. _____Project modifications may be agreed upon during both informal and formal consultations. The costs of modifications are estimated on a case-specific basis, relying on information provided by the Service, action agencies, and private parties involved in the consultations.

2.4 Economic Impacts

41. Economic impacts for the three units that make up the proposed critical habitat designation for the tarplant are described below. At the end of the section, we discuss activities or regulations that have broader cost implications across multiple parcels. These include a discussion of the Service's internal consultation associated with the approval of the Chula Vista subarea plan and potential secondary impacts related to CEQA.

2.4.1 Sweetwater/Proctor Valley Unit

42. The Sweetwater/Proctor Valley Unit (Unit 1) is the largest of the three units, encompassing 3,865 acres. The unit includes federally-owned lands that are part of the SDNWR, land owned by the SWAWD and the Otay Water District, county land known as the Sweetwater Regional Park, and private lands owned by McMillin-Rolling Hills Ranch, LLC (Rolling Hills Ranch), Bella Lago, LLC (Bella Lago), and various landowners in the San Miguel Mountains.

San Diego National Wildlife Refuge

43. The SDNWR is federally-owned land that is managed by the Service. The primary management goals for the Refuge are "to conserve (A) fish or wildlife which are listed as endangered species or threatened species...or (B) plants."²⁶ The SDNWR is home to several endangered or threatened species, including the tarplant, coastal California gnatcatcher, least Bell's vireo, southwestern willow flycatcher, Quino checkerspot butterfly, arroyo toad, and vernal pool species. Three land management activities are likely to be undertaken on the Refuge that may require future internal consultations within the Service. These activities include the development of a Fire Management Plan; plant management activities on parcels of land to be donated by San Miguel Ranch; and plant management and weed abatement measures throughout the entire Refuge. Each of these internal consultations is likely to be formal.²⁷
44. The Service is currently developing a Fire Management Plan for the Refuge. The implementation of this plan will likely require an internal consultation between the managers of the

²⁶16 U.S.C. 1534 (Endangered Species Act of 1973)

²⁷Personal Communication with Carlsbad FWO, March 5, 2002.

SDNWR and the Carlsbad FWO some time in the next ten years.²⁸ Based on the estimates in Exhibit 1, administrative costs for completing the consultation are likely to be approximately \$3,900 to \$6,500 for the managers of the SDNWR and approximately \$3,100 to \$6,100 for the Carlsbad FWO.²⁹ According to representatives of SDNWR, project modifications associated with the Fire Management Plan are unlikely.³⁰ The total cost to the Service for this consultation is likely to be between \$7,000 and \$12,600. Because the Service was aware of the presence of the tarplant in the Refuge prior to the designation of critical habitat, this consultation is attributable co-extensively to the listing of the species.³¹

45. The Service also plans to undertake weed control measures and the removal of exotic species from the Refuge. In particular, the Service will focus these efforts on two parcels of land (referred to in this rule as subunits 1C and 1D) recently donated to the Refuge by the owners of San Miguel Ranch through a settlement agreement. Under the settlement agreement, the Service is committed to actively managing these parcels, with a goal of reducing exotic plants on these lands to ten percent or less. A formal section 7 consultation will likely be initiated in regard to these management activities. The cost to the managers of the SDNWR is likely to be approximately \$3,900 to \$6,500 and the cost to the Carlsbad FWO is likely to be approximately \$3,100 to \$6,100. The total cost of this consultation to the Service is likely to be \$7,000 to \$12,600. This consultation is likely to have been initiated because of the presence of the tarplant and other species, even in the absence of critical habitat designation.³² As a result, the costs to the Service may be attributed co-extensively to the listing of the tarplant.
46. In addition to the weed abatement and control activities occurring on the parcels of land donated by San Miguel Ranch, other general weed control activities are likely to take place in the Refuge.³³ The Service estimates that there may be one additional formal internal section 7 consultation as a result of these activities.³⁴ The administrative costs of this consultation are estimated to be approximately \$3,900 to \$6,500 for the managers of the SDNWR and approximately

²⁸Personal communication with Biologist, SDNWR, November 26, 2001.

²⁹Because this is an internal consultation and the Refuge tries to conserve endangered species and natural habitat, regardless of the ESA, this analysis assumes that formal consultations between the SDNWR staff and Carlsbad FWO staff will not include biological assessments.

³⁰Personal communication with Biologist, SDNWR, January 4, 2001.

³¹Personal communication with Biologist, SDNWR, November 26, 2001.

³²Personal communication with Biologist, SDNWR, November 26, 2001 and February 26, 2002; Email communication with Biologist, SDNWR, December 5, 2001.

³³Personal communication with Biologist, SDNWR, November 26, 2001.

³⁴Personal communication with Biologists, Carlsbad FWO, January 2, 2002.

\$3,100 to \$6,100 for the Carlsbad FWO. In total, the consultation is likely to cost the Service approximately \$7,000 to \$12,600 and is attributable co-extensively to the listing of the tarplant.³⁵

47. The total cost resulting from these potential consultations is approximately \$11,700 to \$19,500 for the managers of the SDNWR and \$9,300 to \$18,300 for the Carlsbad FWO. The total sum of costs to the Service regarding these activities is likely to be approximately \$21,000 to \$37,800. Project modifications resulting from these consultations are not anticipated, because refuge activities are designed to conserve the species and its habitat.³⁶ All of these costs can be attributed co-extensively to the listing of the tarplant.

Sweetwater Authority Water District

48. The SWAWD, a publicly-owned water agency, owns land in the northwest portion of Unit 1, which surrounds the Sweetwater Reservoir. The SWAWD actively manages land in this area to protect the drinking water reservoir. This area also supports a number of listed species, including the coastal California gnatcatcher, arroyo toad, least Bell's vireo, and the tarplant. In 1996, the Service completed a formal consultation with SWAWD that was initiated based on the presence of the least Bell's vireo and that included a conference opinion for the tarplant. The consultation reviewed the proposed implementation of the first phase of SWAWD's Urban Runoff Diversion System.³⁷
49. The SWAWD is one of four water districts jointly developing a subregional plan under the NCCP, called the Joint Water Agencies Subregional Plan. The districts expect to complete the plan in 2002. The finalization of this plan will require an internal, formal consultation between Service personnel.³⁸ The consultation is estimated to cost the Service a total of approximately \$7,000 to \$12,600.³⁹ Because water district officials have a history of past consultations with the Service, and

³⁵Personal communication with Biologist, SDNWR, January 4, 2001.

³⁶Personal communication with Biologist, SDNWR, February 26, 2002.

³⁷Personal communication with Biologist, SWAWD, December 8, 2001.

³⁸California Department of Fish and Game, *NCCP: Update, Status of NCCP Planning Efforts*, <http://www.dfg.ca.gov/nccp/status.htm>, as viewed on February 25, 2002.

³⁹CFO personnel have indicated that the effort involved in completing an internal consultation associated with the approval of a subarea plan is likely to be low, because the Service would have already completed a lengthy HCP approval process where it would have considered all of the potential impacts to species and habitat included in the proposed plan. The Service is highly unlikely to re-open this deliberation or to disagree with the conclusions it reached during the HCP approval process. In addition, although the number of species include in the consultation may be large, requiring a lengthy biological opinion, the drafting of supporting documentation for the

because this consultation would take place even in the absence of critical habitat due to the presence of the tarplant, as well as the other species listed above, the cost of this consultation is attributable co-extensively to the listing of the tarplant.

50. The SWAWD is also planning to build a fishing access area along the southern border of the reservoir as part of the Sweetwater Reservoir Shoreline Fishing Program. The SWAWD routinely contacts the Service prior to initiating development projects because of its existing high level of habitat management. For the fishing access program, the SWAWD contacted the Service and determined at that time that no Federal nexus exists for the project.⁴⁰ As a result, further costs for the fishing program resulting from critical habitat are unlikely.
51. In addition to the proposed fishing program, SWAWD regularly undertakes other management activities in the area of the proposed designation, including weed eradication and operation of a water treatment plant. No Federal nexuses exist for either of these activities, and therefore, these management activities are not expected to be impacted by the designation of critical habitat.

Otay Water District

52. Otay Water District, located in Unit 1B of the proposed designation, is a publicly-owned water and sewer service agency. The proposed critical habitat is within a biological reserve of 230 acres known as the San Miguel Habitat Management Area (HMA), which presently serves as a mitigation bank for District project impacts. The land within the designation was included in the HMA in February 1999 when a section 7 consultation between the Army Corps of Engineers (ACOE) and the Service, originally initiated on behalf of the coastal California gnatcatcher, was reinitiated on behalf of the tarplant.⁴¹
53. Otay Water District is currently developing a subarea plan of the MSCP. If the subarea plan is implemented, the HMA lands will function as components of the MSCP preserve system. Otay Water District intends to finalize the plan in 2002.⁴² The finalization of the plan will trigger an

internal consultation would rely heavily on documentation already drafted by the Service for the approval of the HCP.

⁴⁰Personal communication with Biologist, SWAWD, December 8, 2001.

⁴¹Personal communication with Engineer, Otay Water District, December 27, 2001; *Reinitiation of the Biological Opinion for Otay Water District's Capital Improvement Program, County of San Diego, California (I-6-94-F-42-R1)*, U.S. Fish and Wildlife Service, Ecological Services, Carlsbad Field Office, February 16, 1999.

⁴²California Department of Fish and Game, *NCCP: Update, Status of NCCP Planning Efforts*, <http://www.dfg.ca.gov/nccp/status.htm>, as viewed on February 25, 2002.

internal, formal consultation between Service personnel. The consultation will cost the Service approximately \$7,000 to \$12,600. Because the Service was already aware of the presence of the tarplant at this parcel, this internal consultation would have taken place in the absence of critical habitat designation and, therefore, is attributable co-extensively to the listing of the tarplant.

Sweetwater Regional Park

54. Sweetwater Regional Park has a substantial camping ground on top of Summit Site, a hill that overlooks Sweetwater Valley. Aside from the campground, the area is primarily open space. At this time, no activities are proposed for the park land that would be impacted by the designation of critical habitat.⁴³

Rolling Hills Ranch Development

55. Rolling Hills Ranch is owned by McMillin-Rolling Hills Ranch, LLC, which purchased the development from Pacific Bay Homes in March, 2002. The development property occupies a total of approximately 1,200 acres that will eventually contain almost 2,400 residential units. The western part of the Rolling Hills Ranch property (Phase 1) has either already been developed or is currently under development, and this area is not included in the proposed designation. The eastern part of the property (Phase 2) is slated to begin development shortly, and a portion of this section is included in the proposed designation.⁴⁴
56. The Rolling Hills Ranch project was originally proposed to the City of Chula Vista in the 1980's, at which time an EIR was completed under CEQA. The plan was approved by the city in 1991, but the project was put on hold by the developer until 1997, when construction of Phase 1 began. Also in the early 1990s, the City of Chula Vista started developing its subarea plan as part of the MSCP. Due to the amount of time that had elapsed since the completion of the EIR, the discovery of tarplant in Phase 1 of the project, and the number of new species that had been federally or state-listed as endangered during that time period, the Service and local resource authorities requested additional information from the developers in order to include take associated with development of this project under the proposed subarea plan and incidental take permit. As a result of these discussions, the Rolling Hills Ranch project was included in the draft subarea plan, along with specific conditions for coverage of Phase 2 of the project.
57. Additional surveying on the property identified 27,699 standing tarplants, four Quino checkerspot butterflies, and 29,774 variegated dudleya, which are state-listed, on the undeveloped portion (Phase 2) of the Rolling Hills Ranch property, leading to re-negotiation of the proposed

⁴³ Personal communication with Departmental Biologist, Sweetwater Regional Park, December 18, 2001 and March 6, 2002.

⁴⁴ Public Comments, Letter from Mark J. Dillon to Jim Bartel, Field Supervisor of the Carlsbad FWO, August 13, 2001.

project. On July 19 and 20, 2001, Pacific Bay Homes met with the City of Chula Vista, the Service, and the CDFG to resolve remaining issues so that Rolling Hills Ranch could be covered under the City of Chula Vista's subarea plan and incidental take permit. Boundaries of the Rolling Hills Ranch development were revised to set aside a portion of the property as preserved land, in addition to a number of other modifications designed to address the impacts of development on the tarplant and on the tarplant's habitat in the event that the critical habitat designation encompass a portion of the project.⁴⁵ These project modifications were formalized in a letter of agreement between the Service, the CDFG, the City of Chula Vista, and Pacific Bay Homes, signed on July 19, 2001.⁴⁶ The modifications agreed to on July 19 and 20, 2001 and their associated costs are listed below:

- The net loss of 50 residential lots, each with an approximate residual land value of \$250,000 (average lot value of \$400,000 minus \$150,000 for development costs and fees), for a total loss of approximately \$12.5 million. The majority of this net loss (approximately \$11.25 million) represents efforts to limit effects to two other species also found at the site, the Quino checkerspot butterfly, which is federally-listed, and the variegated dudleya, which is state-listed;⁴⁷
- The purchase of 5.8 acres of mitigation land at the San Miguel Mitigation Bank at a cost of \$25,000 per acre, including management, for a total cost of \$145,000;
- The purchase of one ten-acre parcel within the MSCP Preserve at a cost of \$275,000, plus an additional \$12,000 for management and \$15,000 in administrative costs, for a total cost of \$302,000;
- Brush management in the form of selective weeding, which increases the cost of normal brush management activities by up to \$4,000 per acre for six to eight acres. The selective weeding may also need to be done at a rate of twice per year, rather than at the previous rate of once per year. The total annual additional costs range from \$24,000 per year to \$72,000 per year, for a total ten-year cost of approximately \$240,000 to \$720,000;⁴⁸

⁴⁵ Personal communication with Environmental Projects Manager, City of Chula Vista, December 7, 2001.

⁴⁶ Letter from Mark Durham, Army Corps of Engineers, to Jim Bartel, U.S. Fish and Wildlife Service, dated March 14, 2002, obtained from the Carlsbad FWO ("Letter of Agreement with USFWS and CDFG - July 18, 2001" attached).

⁴⁷ "Letter of Agreement with USFWS and CDFG - July 18, 2001," Exhibit "A" - Proposed Alternative, Rolling Hills Ranch, prepared by Helix, May 8, 2001, obtained from the Carlsbad FWO.

⁴⁸ Standard weed management activities cost approximately \$1,000 per acre.

- An endowment to fund activities in the Tarplant Management Area (TMA), which includes \$100,000 for management activities, plus an additional one-time cost of approximately \$30,000 to \$50,000 for consultant fees and development of the management plan, for a total cost of approximately \$130,000 to \$150,000;
- Transfer of topsoil containing tarplant seed during grading at an additional cost of \$1.50 per cubic yard over ten acres, for a total cost of approximately \$72,600; and
- Transfer of the title of a portion of open space on the property to a conservation organization for inclusion in the subarea plan as MSCP Open Space, estimated to cost approximately \$240,000.⁴⁹

58. The total cost of these project modifications that address the tarplant, Quino checkerspot butterfly, and the variegated dudleya is estimated to be approximately \$14 million. Only a fraction of these costs is directly attributable to the tarplant.⁵⁰

59. As described above, the primary reason for the discussions resulting in these project modifications was the MSCP planning process. However, a representative of McMillin-Rolling Hills Ranch, LLC, has indicated that a developer's motivation, in part, for entering into the MSCP planning process is to streamline future consultations with the Service.⁵¹ Therefore, although the legal enforcement of the MSCP Plan is through section 4(d) of the Act for the California gnatcatcher and through section 10 for the other 85 species, a portion of the project modification costs may be attributable to section 7. It is also important to note that, in the absence of section 7 consultation or the MSCP planning process, these types of project modifications may have been recommended by the CDFG during review of an EIR under CEQA or issuance of an incidental take permit under CESA.⁵² In addition, many of the project modifications described above are designed to mitigate impacts to the Quino checkerspot butterfly and the variegated dudleya, as well as the tarplant.

⁴⁹ As part of the transfer of title to a conservation organization, McMillin-Rolling Hills Ranch, LLC must provide an endowment for the future management of that land. Endowment costs, including an installation factor, are expected to be approximately \$60 per acre per year. The total costs assume that the endowment will cover a 20-year period and earn a five percent rate of return.

⁵⁰ The proposed project modifications and associated costs were obtained from "Letter of Agreement with USFWS and CDFG - July 18, 2001," Exhibit "A" - Proposed Alternative, Rolling Hills Ranch, prepared by Helix, May 8, 2001, obtained from the Carlsbad FWO and personal communication with McMillin-Rolling Hills Ranch, LLC, April 30, 2002.

⁵¹ Personal communication with McMillin-Rolling Hills Ranch, LLC, April 30, 2002.

⁵² In addition to the project modifications agreed to in July, McMillin-Rolling Hills Ranch, LLC is updating the EIR for this project under CEQA.

60. McMillin-Rolling Hills Ranch, LLC would like to proceed with Phase 2 of the development as soon as possible, rather than wait for the Chula Vista subarea plan to be finalized. For this reason, the developer applied to the ACOE for a permit under section 404 of the Clean Water Act, and a consultation with the Service regarding this permit is possible.⁵³ Administrative costs associated with this formal consultation are estimated to be approximately \$3,900 to \$6,500 for the ACOE, \$6,900 to \$9,700 for McMillin-Rolling Hills Ranch, LLC, and \$3,100 to \$6,100 for the Service. Because the developers and the Service were already aware of the presence of the tarplant, as well as other listed species, prior to the proposed designation of critical habitat, this consultation is attributable co-extensively to the listing of the species. No additional modifications to the project footprint, beyond those agreed to in July 2001, are expected to result from this consultation. However, because the project modifications are due, in part, to the developers' desire to streamline its section 7 consultation through the ACOE, the fraction of the costs of those project modifications associated with the tarplant is included in the upper bound estimate of total section 7 costs.
61. The total costs of this consultation are expected to be approximately \$14 million. The majority of these costs, approximately \$11.25 million, result from the conservation of open space (i.e., 45 residential lots that would otherwise have been developed) occupied by the Quino checkerspot butterfly and the variegated dudleya. Therefore, project modification costs associated with the tarplant are estimated to be \$2.75 million.

Bella Lago Residential Community

62. Bella Lago is the owner and developer of a 180-acre residential project, the Bella Lago residential community. The Bella Lago development project is anticipated to be included under the City of Chula Vista's subarea plan, and Bella Lago has been actively involved in meetings with city officials and the Service regarding the formation of the subarea plan, including the July 19 and 20, 2001 meeting with Pacific Bay Homes, other developers, the City of Chula Vista, the Service, and the CDFG. Under the proposed subarea plan, Bella Lago has agreed to mitigate its project's impact to endangered species through avoidance, preserve design, and offsite mitigation.⁵⁴
63. Assuming that Chula Vista's subarea plan is finalized in its current form and Bella Lago's development plans do not change, the measures identified in July to be incorporated into the City of Chula Vista's subarea plan are expected to address the project's impact to the tarplant. Those measures were designed to meet the criteria under section 10 of the Act for issuance of an incidental take permit. As explained later in section 2.4.4, approval of the city's subarea plan and issuance of an incidental take permit will require an internal consultation under section 7 that will address the

⁵³ "Letter from Mark Durham, Army Corps of Engineers, to Jim Bartel, U.S. Fish and Wildlife Service, dated March 14, 2002."

⁵⁴ Public Comments, Letter from James E. Whalen to Jim Bartel, Field Supervisor of the Carlsbad Fish & Wildlife Service, August 13, 2001.

Bella Lago project. However, no additional measures beyond those identified to meet section 10 issuance criteria are expected to be imposed by the project. In particular, the designation of critical habitat is not expected to result in any additional costs to the developer. At this time, Bella Lago does not anticipate that activities proposed at this site will result in any additional section 7 consultation based on the apparent lack of any other Federal nexus.⁵⁵ As a result, the designation of critical habitat is not expected to impact this parcel.

San Miguel Mountains/County of San Diego Major Amendment Area

64. Most of Unit 1B of the proposed designation includes private lands that exist outside the city limits of Chula Vista and that fall under the jurisdiction of the County of San Diego. This area is within a Major Amendment Area of the county's existing subarea plan. These lands are primarily undeveloped, rugged terrain around the San Miguel Mountains. The steeply sloping terrain makes development of this area unlikely.⁵⁶ No proposals for development of this land exist at this time.⁵⁷ Due to the lack of proposed activity on these lands, impacts associated with the critical habitat designation are unlikely.

2.4.2 Chula Vista Unit

65. The Chula Vista Unit (Unit 2) is the smallest of the three units, encompassing 515 acres of land. The unit is primarily comprised of lands owned by the City of Chula Vista or held under conservation easement. In addition, a small section of this unit is owned by Allied Waste Industries, Inc., operators of the Otay Landfill.

⁵⁵ Personal communication with Environmental Projects Manager, City of Chula Vista, December 7, 2001; Personal communication with Turf Biologist, Carlsbad FWO, December 31, 2001.

⁵⁶ Personal communication with Office of General Services, County of San Diego, December 19, 2001.

⁵⁷ Personal communication with Department of Land Use and Planning, County of San Diego, December 18, 2001.

City of Chula Vista Preserve Design Lands

66. Units 2A through F and part of 2G are owned by the City of Chula Vista or held under conservation easement. These lands are primarily canyons, which have retention basins, sewer lines, and either natural or improved drainage channels.
67. These areas are designated as "Open Space Districts" by the Chula Vista General Plan.⁵⁸ Additionally, they are proposed as preserve design areas in Chula Vista's subarea plan. The combination of these elements make future development of these areas unlikely.
68. Activities related to the maintenance of drainage infrastructures in these canyons may require a permit from the ACOE pursuant to section 404 of the Clean Water Act, resulting in a section 7 consultation with the Service. For example, Long Canyon (referred to as Unit 2A in the proposed designation) contains a retention basin called Long Canyon Dam. Approximately twice in ten years, the city has obtained permits from the ACOE to remove silt from the basin and perform maintenance on downstream channels. Both the Service and the CDFG reviewed the projects, and the CDFG asked the city to prepare a two-year plan for re-vegetating and monitoring areas impacted by heavy equipment. Unit 2H contains a newly built retention basin that will require the same type of maintenance.
69. Based on past requirements, city officials estimate the need for five new section 7 consultations related to the maintenance of retention basins and channels over the next ten years.⁵⁹ The Service indicates that the consultations will most likely be informal.⁶⁰ Each informal consultation is estimated to cost approximately \$1,300 to \$3,900 for the ACOE, \$1,200 to \$6,900 for the City of Chula Vista, and \$1,000 to \$3,100 for the Service. In addition, the Service may require project modifications, such as changing the staging area for heavy machinery, bringing equipment in on different roads, or doing the work at a time of year that is favorable for the

⁵⁸ Personal communication with Environmental Projects Manager, City of Chula Vista, December 7, 2001; City Council and Planning Commission, *Chula Vista General Plan*, Chula Vista, CA, September 1995.

⁵⁹ Personal communication with Director of Public Works, City of Chula Vista, January 2, 2002; Personal communication with Assistant Director of Public Works, City of Chula Vista, January 8, 2002.

⁶⁰ Personal communication with Biologist, Carlsbad FWO, January 9, 2002.

seedbank.⁶¹ Based on conversations with ACOE offices throughout the country, these types of project modifications are unlikely to have significant costs, if any.⁶²

70. Because of the MSCP Plan, surveys have been conducted, and the Service is aware of the locations of the tarplant in this area. As a result, all five informal consultations are attributable co-extensively to the listing of the tarplant. The total section 7 costs from the five consultations are estimated to be approximately \$6,500 to \$19,500 for the ACOE, \$6,000 to \$34,500 for the City of Chula Vista, and \$5,000 to \$15,500 for the Service.

Allied Waste Industries, Inc.

71. The southern portion of what is referred to in the proposed rule as Unit 2G is owned by Allied Waste Industries, Inc., the corporation that operates the Otay Landfill. The County of San Diego and the Otay Landfill agreed that the company will not build a landfill on this parcel. The area is currently undeveloped, and Allied Waste Industries has no plans for activities on this parcel that would trigger a section 7 consultation based on the presence of a Federal nexus.⁶³ As a result, this parcel is not expected to be impacted by the designation of critical habitat.

2.4.3 Otay Valley/Big Murphy's Unit

72. The Otay Valley/Big Murphy's Unit (Unit 3) encompasses approximately 2,249 acres of land. The unit includes Federal lands owned by the INS, private land known as the Otay Ranch Land Preserve, and an area known as Big Murphy's Hill belonging to several private landowners.

Immigration and Naturalization Service

73. The INS owns a relatively small parcel of land included in this unit. In 2001, the INS initiated an informal section 7 consultation with the Service regarding a proposal to build and operate an INS facility on this land. At that time, the Service determined that the INS proposal would not impact the tarplant or its habitat. The Service does not anticipate a need to proceed to formal consultation for this project after the designation of critical habitat for the tarplant. No other

⁶¹ Ibid.

⁶² *Draft Economic Analysis of Critical Habitat Designation for the Rio Grande Silvery Minnow*, prepared by Industrial Economics, Inc., February 2002.

⁶³ Personal communication with Office of General Services, County of San Diego, December 19, 2001; Personal communication with Otay Landfill, December 28, 2001.

activities are planned at this site that would require consultations. Therefore, this parcel is unlikely to be impacted by the designation of critical habitat.⁶⁴

Otay Ranch Land Preserve

74. Approximately 1,834 acres of private land known as the Otay Ranch Land Preserve make up Unit 3A. Otay Ranch actually encompasses 23,000 acres, including land beyond the City of Chula Vista, and 11,375 of those acres are set aside as the Otay Ranch Land Preserve. Both the Chula Vista General Plan and the Otay Ranch General Development Plan propose that this area be used as conservation land to mitigate development in other parts of the ranch. In addition, the area in Unit 3A is designated as preserve design land in the City of Chula Vista's proposed subarea plan under the MSCP.⁶⁵
75. City officials indicate that they are proposing to build a sewer line through the northeastern portion of this parcel, in an area of Otay Ranch known as Salt Creek. The proposed sewer line would run from the northern part of Salt Creek, south to the Otay River Valley, and west along the Otay River. This proposed sewer line will serve the Otay Ranch developments north of the Otay Ranch Land Preserve. This activity will likely require a permit pursuant to section 404 of the Clean Water Act. The Service expects that there will be an informal consultation initiated for the Quino checkerspot butterfly, and that the critical habitat of the tarplant will likely be included in that consultation. The cost of the informal consultation is estimated to be \$1,300 to \$3,900 for the ACOE, \$1,200 to \$6,900 for the City of Chula Vista, and \$1,000 to \$3,100 for the Service. This analysis attributes the costs of this consultation to the designation of critical habitat for the tarplant, but, because the consultation will primarily address the Quino checkerspot butterfly, this is likely an overstatement of costs attributable to the tarplant.
76. Other development activity that may take place on this parcel is the construction of roads. However, at this time, no new roads are planned. Therefore, the analysis assumes that this parcel will not face additional impacts beyond those associated with the construction of the sewer line.

Big Murphy's Hill/County of San Diego Major Amendment Area

77. The Big Murphy's Hill area lies outside the limits of the City of Chula Vista and is primarily undeveloped land owned by a few private landowners. The U.S. Border Patrol actively patrols the area for illegal immigrants. As a result, the Service began a programmatic consultation with the Border Patrol to ensure that these activities are not likely to jeopardize the continued existence of

⁶⁴ Personal communication with Carlsbad FWO, December 27, 2001.

⁶⁵ Personal communication with Environmental Projects Manager, City of Chula Vista, December 11, 2001; City Council and Planning Commission, *Chula Vista General Plan*, Chula Vista, CA, September 1995; Otay Ranch Joint Planning Project, *Otay Ranch General Development Plan, Otay Subregional Plan*, Chula Vista, CA, October 28, 1993.

between 30 and 50 federally and state-listed species, including the tarplant, that inhabit the area. This consultation is not expected to be prolonged or reinitiated as a result of the designation of critical habitat, because project activities considered in the consultation will not take place within the area of the proposed critical habitat designation.⁶⁶ Therefore, the proposed designation is unlikely to impact Border Patrol activities.

78. All of the land in this area is designated as either a Minor or Major Amendment Area under the County of San Diego's existing subarea plan. At this time, no activities are proposed for this area. As a result, the designation of critical habitat is unlikely to impact landowners in this subunit.

2.4.4 Approval of the City of Chula Vista Subarea Plan

79. In addition to the potential impacts discussed in the previous sections, one additional internal, formal consultation will be required for approval of the City of Chula Vista's subarea plan. The plan is described in section 1.3.4 and is likely to be approved in late 2002. This one internal consultation will address all activities covered by the subarea plan. Affected areas within the proposed critical habitat designation include the Rolling Hills Ranch development, Bella Lago Residential Community, City of Chula Vista preserve design lands, and Otay Ranch Land Preserve. The internal consultation is expected to cost the Service approximately \$7,000 to \$12,600. This analysis distributes that cost across the three units of the designation, because the subarea plan will affect lands within all three units. This internal consultation would have occurred because of the presence of the listed species covered in the plan, including the tarplant, and is, therefore, attributable co-extensively to the listing of the tarplant. This conclusion may overstate costs which are attributable in part to other listed species.

2.4.5 Secondary CEQA Impacts

80. Section 15065 of Article 5 of the CEQA regulations state that a lead agency must prepare an EIR for projects that "substantially reduce the habitat of fish and wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare or threatened species, or eliminate important examples of the major periods of California history or prehistory." As discussed in section 1.3.2 of this analysis, the designation of critical habitat for the tarplant is not likely to cause any additional costs associated with CEQA for lands that are known to be tarplant or other wildlife species habitat. However, the proposed designation of critical habitat may provide new information about area that are within the geographical area occupied by the tarplant. Thus, the designation of critical habitat may increase the knowledge about the range of the tarplant for project developers and permitting agencies.

⁶⁶ Personal communication with Biologist, Carlsbad FWO, December 27, 2001.

81. Extensive surveying accompanied the development of the various subarea and subregional plans included in the boundaries of the MSCP Plan. As a result, the locations of Otay tarplant were mapped out prior to the designation of critical habitat. The designation is not expected to provide any additional information about the plant's location, so no secondary CEQA impacts are anticipated.

2.5 Summary of Economic Impacts

82. Exhibit 2 summarizes the expected administrative and project modification costs resulting from section 7 implementation for the Otay tarplant in the critical habitat area. Total section 7 costs, including costs associated with the jeopardy provision, are conservatively estimated to be \$2.8 million to \$2.9 million. This estimate likely overstates actual section 7 costs, because it includes costs that are also attributable to other species as well as other State regulations.
83. As part of the MSCP process, tarplant surveys have been conducted and many occupied areas have been mapped. As a result, for most of the proposed activities within the proposed critical habitat boundaries, the potentially impacted landowners or managers were already aware of the presence of the tarplant on at least a portion of their property prior to the proposal critical habitat. The critical habitat designation will not provide new information about the potential presence of the tarplant to most of the potentially affected parties. In addition, most of the parcels where impacts are expected are occupied by the tarplant. As a result, the costs attributable solely to critical habitat, approximately \$3,500 to \$13,900, are much smaller than the total section 7 costs.

Exhibit 2 SUMMARY OF POTENTIAL ECONOMIC IMPACTS WITHIN PROPOSED CRITICAL HABITAT FOR THE OTAY TARPLANT OVER TEN YEARS				
Critical Habitat Unit	Potentially Affected Party	Potentially Affected Activity	Estimated Section 7 Costs	Costs due to Critical Habitat
Unit 1	City of Chula Vista ^a	City of Chula Vista Subarea Plan	\$2,333 to \$4,200 ^c	None
	San Diego National Wildlife Refuge	Fire Management Plan	\$7,000 to \$12,600 ^d	None
		Weed Control and Exotic Species Removal	\$7,000 to \$12,600 ^d	None
		Weed Abatement and Control	\$7,000 to \$12,600 ^d	None
	Sweetwater Authority Water District ^a	Joint Water Agencies Subregional Plan	\$7,000 to \$12,600	None
	Otay Water District ^a	Otay Water District Subarea Plan	\$7,000 to \$12,600	None
	Rolling Hills Ranch	Private Residential Development	\$2.75 million	None
	Bella Lago	Private Residential Development	None	None
Unit 2	City of Chula Vista ^a	City of Chula Vista Subarea Plan	\$2,333 to \$4,200 ^c	None
	City of Chula Vista Preserve Design Lands	Maintenance of Flood Control Infrastructure	\$17,500 to \$69,500	None
Unit 3	City of Chula Vista ^a	City of Chula Vista Subarea Plan	\$2,334 to \$4,200 ^c	None
	Otay Ranch Land Preserve	Construction of Sewage Line	\$3,500 to \$13,900 ^e	\$3,500 to \$13,900 ^e
TOTAL			\$2.8 million to \$2.9 million	\$3,500 to \$13,900
^a The Service bears the cost of these internal consultations rather than the landowners; the cost of each of these internal consultations is equal to that of an informal consultation without a third party. ^b The additional \$11.25 million in project modification costs described in section 2.4.1 are primarily to address the federally-listed Quino checkerspot butterfly and the state-listed variegated dudleya, thus they are not included in this analysis of section 7 costs related to the Otay tarplant. ^c The cost of the internal consultation for the city's subarea plan is divided evenly between Units 1, 2, and 3, because all these units have lands and activities covered by the plan. ^d The cost of each of these formal internal consultations is approximately equivalent to a formal consultation without a third party or a biological assessment. ^e These costs are incurred by the Service and the City of Chula Vista. Note: Costs may not add up due to rounding.				

2.6 Potential Impacts to Small Businesses

84. Under the Regulatory Flexibility Act (as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996), whenever a Federal agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effect of the rule on small entities (i.e., small businesses, small organizations, and small government jurisdictions).⁶⁷ However, no regulatory flexibility analysis is required if the head of an agency certifies that the rule will not have a significant economic impact on a substantial number of small entities.⁶⁸ SBREFA amended the Regulatory Flexibility Act to require Federal agencies to provide a statement of the factual basis for certifying that a rule will not have a significant economic impact on a substantial number of small entities. Accordingly, the following represents a screening level analysis of the potential effects of critical habitat designation on small entities to assist the Secretary in making this certification.
85. This analysis determines whether critical habitat potentially affects a "substantial number" of small entities in counties supporting critical habitat areas. If a substantial number of small entities is affected, then it also quantifies the probable number of small businesses that experience a "significant effect." While SBREFA does not explicitly define either "substantial number" or "significant effect," the Small Business Administration (SBA) and other Federal agencies have interpreted these terms to represent an impact on 20 percent or more of the small entities in any industry and an effect equal to three percent or more of a business' annual sales.⁶⁹ In both tests, this analysis conservatively examines the total estimated section 7 costs calculated in earlier sections of this report, including those impacts that may be "attributable co-extensively" with the listing of the species.

2.6.1 Identification of Activities That May Involve Small Entities

86. Section 2.4 of this report identifies land use activities that are within the proposed critical habitat designation for the tarplant that are expected to be affected by section 7 of the Act. The following land use activities were identified as being potentially impacted by section 7

⁶⁷ 5 U.S.C. 601 et. seq.

⁶⁸ Thus, for a regulatory flexibility analysis to be required, impacts must exceed a threshold for "significant impact" **and** a threshold for a "substantial number of small entities." See 5 U.S.C. 605 (b).

⁶⁹ See U.S. Small Business Administration, The Regulatory Flexibility Act: An Implementation Guide for Federal Agencies, 1998, accessed at <http://www.sba.gov/advo/laws/rfaguide.pdf> on December 3, 2001.

implementation (i.e., requiring consultations or project modifications) under the “without section 7” scenario:

- Development of a Fire Management Plan for the San Diego National Wildlife Refuge;
- Weed abatement measures and control activities and exotic plant removal at the San Diego National Wildlife Refuge;
- Private residential development;
- Maintenance of drainage infrastructure on lands owned by the City of Chula Vista;
- Construction of new sewer lines by the City of Chula Vista;
- Approval of subregional plans for Sweetwater Authority Water District and Otay Water District; and
- Approval of the City of Chula Vista’s subarea plan.

87. Of the projects that are potentially affected by section 7 implementation for the tarplant, two occur on exclusively on Federal lands *and* do not have third party involvement (i.e. only the Action agency and the Service are expected to be involved). Thus, small entities should not be affected by section 7 implementation for activities on lands within the San Diego National Wildlife Refuge.

88. In addition, the SBREFA defines a "small governmental jurisdiction" as "governments of cities...with a population of less than fifty thousand."⁷⁰ Because Chula Vista has a population of over 150,000 people, the city government is not considered a small entity. As such, impacts associated with consultations with the City of Chula Vista are not included in this screening analysis.

89. The SBA sets size standards for *for-profit* small businesses, including a size standard for water supply systems of \$6 million in average annual receipts (also referred to as sales or revenues).⁷¹ However, Sweetwater Authority Water District and Otay Water District are both *publicly-owned* water supplies, managed by an elected Board of Directors.⁷² When assessing regulatory impacts on

⁷⁰ U.S.C. § 601.

⁷¹ U.S. Small Business Administration, “Table of Small Business Size Standards,” accessed at <http://www.sba.gov/size/indehtableofsize.html> on June 26, 2002.

⁷² Sweetwater Authority, “Our Water,” accessed at http://www.sweetwater.org/our_water on June 26, 2002 and Otay Water District, “About Otay - What is the Otay Water District,” accessed

public drinking water systems, the U.S. Environmental Protection Agency defines a small entity as a public water system that serves 10,000 or fewer persons.⁷³ This cutoff corresponds to a distinct break in certain key financial ratios. For example, residential customers comprise a smaller percentage of water sales for systems serving more than 10,000 people. Since annual sales per connection are significantly higher for nonresidential customers, larger systems generally earn higher per-connection revenues. In addition, in developing the 1996 Amendments to the Safe Drinking Water Act, Congress expressed particular concern about systems of this size. Both the Sweetwater Authority Water District and the Otay Water District serve populations greater than 10,000 persons.⁷⁴ As such, effects of section 7 on these water districts are not considered in this screening analysis.

90. Two developers, McMillin-Rolling Hills Ranch, LLC and Bella Lago, were identified as having a Federal nexus and therefore are potentially affected by section 7 implementation for the tarplant. McMillin-Rolling Hills Ranch, LLC, owner of the Rolling Hills Ranch property, is expected to complete a section 7 consultation with regard to its application to the ACOE for a permit under section 404 of the Clean Water Act and will experience costs associated with project modifications. Bella Lago is not expected to experience any additional costs as a result of section 7 for the tarplant. Because it will not be affected by section 7 implementation for the tarplant, Bella Lago is not considered in this screening analysis.

2.6.2 Description of Affected Small Entities

91. The SBA defines small development businesses as having less than \$5 million in average annual receipts (also referred to as sales or revenues).⁷⁵ For the purposes of this SBREFA screening analysis, the analysis assumes that McMillin-Rolling Hills Ranch, LLC is a small business. This analysis also limits the potential universe of affected entities to include all those within the county in which critical habitat units lie; this interpretation produces far more conservative results than including all entities nationwide.

at http://www.otaywater.gov/about/about_home2.htm on June 26, 2002.

⁷³ U.S. Environmental Protection Agency, “National Primary Drinking Water Regulation: Consumer Confidence Reports; Final Rule,” August 19, 1998 (63 FR 44511).

⁷⁴ Sweetwater Authority, “Facts,” accessed at http://www.sweetwater.org/our_water/facts.html on June 26, 2002 and Otay Water District, “About Otay - What is the Otay Water District,” accessed at http://www.otaywater.gov/about/about_home2.htm on June 26, 2002.

⁷⁵ U.S. Small Business Administration, “Table of Small Business Size Standards,” accessed at <http://www.sba.gov/size/indextableofsize.html> on June 26, 2002.

2.6.3 Estimated Number of Small Businesses Affected: The “Substantial Number” Test

92. There are approximately 478 residential development companies in San Diego County, 414 of which are small businesses.⁷⁶ Because only one developer will be impacted by the proposed tarplant critical habitat designation, less than one percent of small development companies are potentially affected. Because less than 20 percent of the small entities in this industry are impacted, this analysis concludes that a significant economic impact on a substantial number of small entities will not result from the designation of critical habitat for the tarplant. For a detailed discussion of the potential significant impacts on McMillin-Rolling Hills Ranch, LLC, see section 2.4.1 of this analysis.

2.7 Benefits

93. To determine the benefits of critical habitat designation for the tarplant, this report considers those categories of benefit that will be enhanced as a result of the listing of the species and the proposed critical habitat designation.
94. The primary goal of listing a species under the Act is to preserve the listed species and the ecosystems upon which they depend. However, various economic benefits, measured in terms of regional economic performance and enhanced national social welfare, result from species preservation as well. Regional economic benefits can be expressed in terms of jobs created, regional sector revenues, and overall economic activity. National social welfare values reflect both use and non-use (i.e., existence) values and can reflect various categories of value. For example, use values might include the recreational use of habitat area preserved as a result of the tarplant. Existence values are not derived from direct use of the species, but instead reflect the satisfaction and utility people derive from the knowledge that a species exists.
95. The following examples represent potential benefits derived from the listing of the tarplant and, potentially, critical habitat:
- **Ecosystem health.** Absent the plant, other natural organisms may suffer. Actions to protect the tarplant may also benefit other organisms. Each one of these organisms may provide some level of direct or indirect benefit to people.

⁷⁶ Defined as businesses in SIC code 6552, and small businesses with sales of less than \$5 million. See U.S. Small Business Administration, "Table of Size Standards," accessed at: <http://www.sba.gov/size/indehtableofsize.html> on January 9, 2002. This analysis obtains data on the number of businesses that meet the SBA definition of "small" (annual sales less than \$5.0 million for SIC 6552) from a query of the Duns Market Identifiers database (queried January 9, 2002).

- **Flood control.** Preserving natural environments can also reduce future Federal Emergency Management Agency (FEMA) and county expenditures on bank stabilization and other flood control programs.

96. The extensive protection provided by the county and city subareas of the MSCP plan and city general plan provide for many of these benefits. In addition, the benefits identified above arise from the protection afforded to the tarplant under the Federal listing. Critical habitat designation may provide some additional benefits beyond the listing benefits. Critical habitat designation provides some educational benefit by increasing awareness of the extent of tarplant habitat. Critical habitat also provides a legal definition of the extent of tarplant habitat. This reduces the amount of uncertainty Federal agencies face when determining if a section 7 consultation is necessary for an activity with a Federal nexus.

97. The quantification of total economic benefits attributable to the designation of critical habitat is, at best, difficult. To the extent that future consultations are expected to be associated with the listing of the species, rather than the critical habitat designation, designation of critical habitat does not provide benefits in terms of increased the probability of recovery for the species. In that case, the additional benefits of designating critical habitat for the tarplant would be limited to the educational benefits, increased support for existing conservation efforts, and reduced uncertainty regarding the extent of the tarplant habitat.

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